Clothing and Equipment for Cold Weather and Mountain Operations

Terminal Learning Objective

Action: Wear cold weather clothing and equipment

Condition: Given the ECWCS, other issued cold weather clothing items, and the issued cold weather sleep system with insulating pad, under field conditions, where temperatures range from 40º to -60º F

Standard: Soldier used issued cold weather clothing and equipment to prevent cold weather injuries.

Cold Weather Uniform Should:

Keep you warm

Keep you dry

Protect you from the wind

Provide ventilation

Extended Cold Weather Clothing System Design Principles

Insulate: Any material that reduces the amount of heat lost to the environment

Layer: Several layers of clothing provide more insulation and flexibility than one heavy garment even if the heavy garment is as thick as the combined layers

Ventilate: Helps to maintain a comfortable body temperature by allowing excess heat to escape

Extended Cold Weather Clothing System Overview

Base Layer – also known as inner or wicking layer, the base layer(s) are designed to wick excess moisture away from your body.

Insulation Layer – intermediate layer(s) that provides volume to enable you to trap warm air between your body and outer garments

Outer Shell Layer – external layer that protects you from the elements providing protection from wind and moisture

Clothing Guidelines

C- ***Keep it Clean***

O- ***Avoid Overheating***

L- ***Wear clothes Loose and Layered***

D- ***Keep clothing Dry***

C- *Keep it Clean*

Dirt and grease reduce the insulating properties of clothing

Clean whenever possible

Dry rub clothing in the field

O*- *Avoid Overheating

Don't overdress

Causes excess perspiration

Dampness reduces insulating properties of clothing

Perspiration evaporates, cooling the body

L*-*Wear clothes Loose and Layered

Tight clothing restricts circulation

Restricts movement

Lessens volume of trapped air

D- Keep clothing Dry

Moisture enters from both outside and inside

Dampness lessens insulating properties of clothing

Brush snow off clothing before entering heated shelter

Air dry clothing away from direct heat source

Dry leather items slowly

Gen II ECWCS Components

Base Layer-

- **Polypropylene undershirt and drawers with standard wool socks (commonly referred to as polypro)**
- **You may be issued a lightweight and/or mid-weight polypropylene undershirt and drawers**

Insulation Layer-

- **Pile Jacket and Medium Weight Stretch Bib Overalls (commonly referred to as Polar Fleece top and bottoms) *and/or***
- **Liner Cold Weather Coat and Liner Cold Weather Trousers (commonly referred to as smoking jacket and pants)**

Outer Shell Layer-

- **Extended Cold Weather parka and trousers (commonly referred to as GORTEX top and bottom)**
- **GORTEX gloves with inserts, trigger finger mittens with inserts, arctic mittens**
- **White vapor barrier boot *and/or* intermediate cold weather boot (ICW).**
- **Wool balaclava, and/or pile cap, *and/or* OR Windstopper Balaclava, neck gaiter**

GEN II ECWCS: Base Layer

Polypro undershirt and drawers:

- **Wear next to skin**
- **DO NOT wear cotton undergarments under polypro**
- **Standard issue is shown; lightweight and mid-weight are available and may be issued**
- **Worn with single wool sock or two sock system**

GEN II ECWCS: Insulation Layer

Liners, Cold Weather – Coat and Trousers:

- **Wear over base layer**
- **Same material as poncho liner**
- **Coat has slits under arm for ventilation**
- **Trousers are sized short intentionally**

GEN II ECWCS: Insulation Layer

- **Polar Fleece Shirt**

- **Polar Fleece Overalls**

- **The USARAK policy is that (IAW USARAK Pamphlet 600-2 policy), “(c) The issued black polartec fleece will not be worn as an outer garment while outdoors.”**

Gen II ECWCS: Outer Shell Layer

- **Wear GORE-TEX® over base and insulation layers or over base layer for heavier activity levels**
- **Wear the GORE-TEX® trousers with suspenders**
- **GORE-TEX® water repellency can be restored**
- **Three balaclava configurations**
- **Three neck gaiter configurations**
- **Boots issued in basic training are NOT for cold weather**
- **Below 14º F, you should wear the white VB boot**
- **Always wear a contact glove when temperatures are below 32º F**

Modular Sleep System (MSS)

The complete MSS system weighs about 7 pounds and includes:

- **Patrol Bag is rated 50º F to 30º F**
- **Intermediate Cold Weather Bag is rated 30º F to -10º F**
- **Vapor Permeable GORE-TEX® Bivouac Cover**
- **Intermediate Cold Weather bag goes inside the Patrol Bag which goes inside the Bivouac Cover. This provides protection from -10º F to -40º F for 4 hours of sleep.**
- **The newer ACU style is rated to**

Generation III ECWCS Level 1: Base Layer

Lightweight Cold Weather Undershirt and Drawers

Long sleeve top and full-length bottom constructed from silkweight moisture wicking polyester

Material aids in movement of moisture from the skin to the outer layers

Generation III ECWCS Level 2: Base layer

Lightweight Cold Weather Shirt and Drawers

Long sleeve top and full-length bottom garments constructed out of polyester ‘grid’ fleece

Grid fleece provides an increase of surface area for transportation of moisture away from the wearer during movement

Can be worn next to skin or over Level 1 for additional insulation

Generation III ECWCS Level 3: Insulation Layer

Fleece Jacket is the primary insulation layer for use in moderate to cold climates.

Thermal Pro, animal fur mimicking insulation provides an increase in warmth to weight ratio along with a reduction in volume when packed.

Not authorized for use as an outer garment in USARAK.

Generation III ECWCS Level 4: Outer Shell

Wind Cold Weather Jacket is made of a lightweight, windproof and water repellant material

Acts as a minimum outer shell layer, improving the performance of moisture wicking layers when combined with Body Armor and/or the ACU

Generation III ECWCS Level 5: Outer Shell

Soft Shell Cold Weather Jacket and Trousers

Made of a highly water resistant, wind proof material that increases moisture vapor transfer

Increase of breathability improves performance of insulation layers by decreasing saturation due to moisture vapor accumulation

Provides a reduction in weight, bulk and noise signature during movement

Best used when temperature is below 14º F.

Generation III ECWCS Level 6: Outer Shell

Extreme Cold/Wet Weather Jacket and Trousers

A waterproof layer for use in prolonged and/or hard rain and cold wet conditions

Best used when temperatures are above 14º F and alternating between freezing and thawing

Generation III ECWCS Level 7: Outer Shell

Extreme Cold Weather Parka and Trousers

Provides superior warmth with low weight, and low volume

Highly water-resistant and windproof in order to provide wind and moderate moisture protection

Sized to fit over body armor

For extreme cold weather climates; the outer most layer of protection. Meant for static positions

ECWCS Care Instructions

- Universal care instructions for all garments (to include MSS)
  - Before laundering make sure all zippers are zipped and all snaps and hooks are fastened. Tie draw cords together.
  - For MSS use front load washing machine
  - Machine launder using delicate/gentle fabric cycle or by hand.
  - Use lukewarm water (90º F) and cold water laundry detergent
  - Rinse in clean cold water.
  - Dry in tumble dryer. Do not exceed temperatures of 130º F as degradation of component materials will occur. For Level VI, set on permanent press.
  - Avoid over drying.
  - To drip dry, place on a rust proof hanger

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